Mathematics 073 S01
Advanced Mathematics 2
Fall 2015

Instructor: Gemma Cuizon
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Telephone: (250) 370-3303
Schedule:

Time	Monday	Tuesday	Wednesday	Thursday	Friday
5:00 pm - 5:30 pm	Office Hours E342B	Office Hours E342B	Office Hours E342B	Office Hours E342B	
5:30 pm - 7:50 pm	Math 072/073 S01 E348	Math 072/073 S02 E346	Math 072/073 S01 E348	Math 072/073 S02 E346	

Important Dates:

September 9	First day of Math 072 class
September 22	Fee deadline
October 12	Thanksgiving Day – College closed
November 9	Last day to withdraw from the course or change to audit
November 11	Remembrance Day – college closed
December 17	Last day to write tests or Final Exam

Prerequisites: The minimum recommended prerequisite is a **recent C+** in Math 072, or a **recent C** in Principles of Math 11. If you have been away from math for more than two years, then hopefully your prerequisite grade is higher.

Exit Grade: You need a minimum of **C+** in 073 to continue into Math 107or a **B** in Math 073 to continue into Math 115. Please come and see me before you register for a Math 12 or precalculus course.

Required Textbook: *Intermediate Algebra*, 12th Edition, Marvin Bittinger
Option 1: Textbook comes packaged with the Student's Solution Manual, and Algebra Review Study Card.
Option 2: Textbook comes packaged with MyMathlab (Text + Student Solution Manual available online with MML access).
Trigonometry sold separately.

Workload

The course completion time will vary for each student, depending on a number of factors to be discussed with the instructor when the **individual learning plan** is developed. Factors include the students' beginning level of math skills, motivation, learning rate, and how much time they can actually study and attend class. It takes 2 – 4 hours to read through one section and do both the margin exercises and enough exercises in the exercise set to feel comfortable with the material. There are 36 sections in this course; this means that you have between **72 – 144 hours of work** ahead of you not including study time for tests and the final exam! If you work 5 days a week on this course, then you need to put in 2 – 4 hours a day to finish the course in one term. There is lots of help available; you can ask me questions during class or during office hours, you can get help from the math tutors in the help centres.

Course Content: MATH 073 is the second half of an intermediate algebra and triangle trigonometry course. Math 072 & 073 together articulate as Principles of Math 11. However, those of you who have taken Principles of Math 11 will notice that 073 has quite a different flavour; we emphasize both numeracy and algebra and trigonometric skills using only basic scientific calculator when necessary. Topics include operations on polynomials, factoring, rational expressions and equations, rational exponents, radicals and radical equations, quadratic equations and functions, right triangle trigonometry and the sine and cosine laws. Applications are seen throughout the course

Unit 1 is review for those who have taken Math 072 recently. If you have completed Math 072 within the last month, you do not need to write the Unit 1 test; you may use your Math 072 mark for Ch 4 instead.

Unit 1: Ch 4 Polynomials and Polynomial Functions   4.1 – 4.8
Unit 2: Ch 5 Rational Expressions, Equations and Functions 5.1 – 5.8
Unit 3: Ch 6 Radical Expression, Equations and Functions   6.1 – 6.8
Unit 4: Ch 7 Quadratic Equations and Modelling   7.1 – 7.7a
Unit 5:   Trigonometry (separate booklet)   5.1, 5.2, 5.3, 7.1, 7.2

Homework for Unit 1 (Ch 4)

Unit 1	Section	Margin Exercises	A Bit More Practice	Lots More Practice
4.1	Introduction to Polynomials	all	5, 19, 21, 25, 27, 29, 35 – 60 Odd, 65 – 80 Odd	1 – 80
4.2	Multiplication of Polynomials	all	1 – 60 Odd, 63 – 84 Odd, 85, 89	1 – 92
4.3	Introduction to Factoring	all	1 – 30 Odd, 33, 37 – 54 Odd	1 – 54
4.4	Factoring Trinomials of the Form: $x^2 + bx + c$	all	1 – 44 Odd	1 – 44
4.5	Factoring Trinomials of the Form: $ax^2 + bx + c, a \neq 1$	all	Start with the FOIL method (trial and error); switch to the ac-method as needed 1 – 50 Odd	1 – 50
4.6	Special Factoring	all	3, 5, 7, 9, 11, 13, 15, 17, 23, 25, 33 – 48 odd, 53 – 100 Odd	1 – 100
4.7	Factoring Strategy	all	1 – 56 Odd	1 – 56
4.8	Applications	all	1 – 58 Odd, 63 – 82 Odd	1 – 82
Properties and Formulas		1. classification of polynomials by the number of terms and degree 2. squaring a binomial (in your head) 3. factoring formulas (diff. of squares, sum/diff of cubes) 4. Principle of Zero Products		
Function Notation		Sections 2.2, 4.1, 4.2		
Word Problems in Section 4.8		Know the Pythagorean Theorem and the formulas for the area of a square, rectangle and triangle (inside back cover of textbook)		
Chapter 4 Test : 1 – 40		No peeking at the answers until you have finished the test! Grade yourself; hard questions are worth 2 marks each and the other questions are worth 1 mark each. If you are satisfied with the results, then great! If you want more practice, choose from the suggestions below.		

Homework for Unit 2 (Ch 5)

Unit 2	Section	Margin Exercises	A Bit More Practice	Lots More Practice
5.1	Rational Expressions	all	5 – 12 Odd, 17 – 64 Odd	5 – 64
5.2	Addition and Subtraction	all	3, 5, 7, 9, 11, 13, 17, 21, 27, 29, 31 – 74 Odd	1 – 74
5.3	Polynomial Division	all	3, 5, 7, 9, 15, 19, 23, 27, 31, 35, 37	1 – 38
5.4	Complex Fractions	all	1 – 30 Odd	1 – 30
5.5	Solving Rational Equations	all	1 – 45 Odd	1 – 45
5.6	Applications and Proportions	all	1 – 34 Odd	1 – 34
5.7	Formulas	all	1 – 24 Odd	1 – 24
5.8	Variation	all	1 – 46 Odd	1 – 46
Concept Reinforcement				
Properties and Formulas		1. Work Principle: Please ask help if you don't understand why this works. 2. Direct, Inverse and joint Variation		
Chapter 5 Test : 1 – 36		No peeking at the answers until you have finished the test! Grade yourself; hard questions are worth 2 marks each and the other questions are worth 1 mark each. If you are satisfied with the results, then great! If you want more practice, choose from the suggestions below.		

Homework for Unit 3 (Ch 6)

Unit 3	Section	Margin Exercises	A Bit More Practice	Lots More Practice
6.1	Radical Expressions & Functions	all	1 – 28 Odd, 31 – 80 Odd	1 – 80
6.2	Rational Exponents	all	1 – 88 Odd	1 – 88
6.3	Simplifying Radicals	all	1 – 96 Odd	1 – 96
6.4	Operations with Radicals I	all	1 – 78 Odd	1 – 78
6.5	Operations with Radicals II	all	1 – 40 Odd	1 – 40
6.6	Solving Radical Equations	all	3, 5, 7, 11, 15, 17, 21, 25, 29, 31, 35, 37, 41, 49, 55	1 – 58
6.7	Applications	all	1 – 30 Odd	1 – 30 Odd
6.8	Complex Numbers	all	7, 11, 15, 21, 25, 29, 31, 35, 39, 43, 45, 49, 51, 57, 61, 63, 71, 75, 77, 85, 89, 91, 93	1 – 94
Properties and Formulas		Definition of rational exponents: $x^{\frac{m}{n}} = \left(\sqrt[n]{x}\right)^m$ or $x^{\frac{m}{n}} = \sqrt[n]{x^m}$ Definition of principle root (when to use absolute value with radicals) Definition of i and i^2: $\sqrt{-1} = i$ and $i^2 = -1$		
Chapter 6 Test		1 – 47		

Homework for Unit 4 (Ch 7)

Unit 4	Section	Margin Exercises	A Bit More Practice	Lots More Practice
7.1	The Basics of Solving Quadratic Equations	All	1 – 54 Odd	1 – 54
7.2	The Quadratic Formula	All	1 – 44 Odd	1 – 44
7.3	Applications	All	1 – 30 Odd, 33, 37, 39, 41, 43	1 – 48
7.4	More on Quadratic Equations	All	3, 7, 11, 15, 19, 23, 27, 31 – 62 Odd	1 – 62
7.5	Graphing I	All	1, 3, 5, 11, 17, 21, 23, 25	1 – 26
7.6	Graphing II	All	1, 3, 7, 9, 11, 15, 19	1 – 20
7.7	Mathematical Modelling (only a)	Only #1	1 – 18 Odd	1 – 18
Properties and Formulas		Definition of rational exponents: $x^{\frac{m}{n}} = \left(\sqrt[n]{x}\right)^m$ or $x^{\frac{m}{n}} = \sqrt[n]{x^m}$ Definition of principle root (when to use absolute value with radicals) Definition of i and i^2: $\sqrt{-1} = i$ and $i^2 = -1$		
Chapter 7 Test		1 – 19		

Homework for Unit 5 (Trigonometry)

- The following homework is from the Trigonometry booklet (taken from Algebra and Trigonometry, Second edition by J. A. Penna and M. Bittinger).
  If you do not have a copy, please ask. We have a couple of spare copies that we can lend.

Unit 5	Section	Margin Exercises	A Bit More Practice	Lots More Practice
5.1	Trig Functions of Acute Angles		**NC** before a group of questions means that you should **not use a calculator** for these questions **NC** 1 – 29, 31 – 81 **NC** 83 – 97	Same as previous column
5.2	Applications of Right Triangles		7 – 21, 25 – 31	1 – 21, 25 – 31
5.3	Trig Functions of Any Angle		1 – 23, **NC** 25 – 77, 83 - 105	Same as previous column
7.1	The Law of Sines		1, 3, 5, 9, 13, 15, 25, 27, 29	1 – 15, 25, 27, 29
7.2	The Law of Cosines		1, 3, 7, 9, 13, 17, 19, 21, 25, 29, 31	1 – 23, 25, 27, 29, 31
Properties and Formulas		5.1 right triangle definitions of the 6 trig. Functions definitions of the reciprocal functions labelling of special triangles degrees, minutes and seconds 5.2 angle of elevation and depression bearings (first type) 5.3 angle in standard position reference triangle co-ordinate definitions of the trigonometric functions (p29) reference angle bearings of the second type (p38) 7.1 sine law (including the ambiguous case) 7.2 cosine law		

Final Exam Checklist

Practice Final	Pick up a copy of the Practice Final and Solutions from me. Do several questions before checking the answers to better simulate a testing experience.
Vocabulary and Rules	domain of a function classification of polynomials square of a binomial diff. of squares, sum & diff. of cubes factoring strategy principle of zero products Pythagorean Theorem compare simplifying an expression with solving an equation direct, inverse and joint variation principal square root of a^2: $\sqrt{a^2} = \|a\|$ simplifying $\sqrt[k]{a^k}$ definition of $a^{\frac{m}{n}}$ laws of exponents rationalizing the denominator $\sqrt{-1} = i$ and $i^2 = -1$; complex conjugates principle of square roots: $x^2 = d \Rightarrow x = \pm\sqrt{d}$ solving quadratics by completing the square quadratic formula: $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ discriminant: $b^2 - 4ac$ parabola: vertex, line of symmetry writing a quadratic function in graphing form by completing the square (note the similarities and differences with solving quadratics by completing the square) back cover perimeter and area: square, rectangle, triangle, circle Trig5.1 right triangle definitions of the six trig functions; definitions of the reciprocal functions; labeling of special triangles; degrees, minutes and seconds Trig5.2 angle of elevation and depression, bearings (first type) Trig5.3 angle in standard position, reference triangle, co-ordinate definitions of trig functions (p29), reference angle, bearing of the second type (p38) Trig7.1 sine law (including the ambiguous case) Trig7.2 cosine law
Word Problems	Sections 4.8, 5.6, 5.8, 6.7, 7.3, 7.7 Trig booklet: 5.2, 5.3, 7.1, 7.2
Rearranging Formulas	Section 5.7, 7.3
Chapter Tests & Review Exercises	If you are having trouble with a particular chapter, redo that chapter test and/or some of the review exercises for that chapter.

Access Math Lab:	**Ewing 342 and Ewing 224:** This drop-in centre is freely available for your use to work on math homework and to seek help from the tutor on staff (see hours posted on door).

Calculator Policy: As per Math Department policy, the only calculator permitted for use on quizzes and the final exam is the **Sharp EL-531X** scientific calculator. No other make/model of calculator is permitted, nor are other electronic devices such as cell phones, PDAs, laptop computers, electronic translators, etc.

Course Objectives: The four very ambitious objectives of the course are:

- To learn the basic algebra skills necessary to be successful both in your chosen field of study and in future math courses. This involves learning the vocabulary, notation, rules, and techniques of intermediate algebra, as well as solving applied problems.
- To do basic arithmetic without a calculator.
- To learn to write mathematics correctly.
- To be able to explain the concepts involved in problem solving.

Assessment (Grades)

Your mark is based on 5 tests and an exam. If you get less than 65% on a test you must rewrite it. If you get more than 65% you have the option of rewriting it once. All test marks will count towards your final mark. To re-register for the course for one extra term, you must have at least 75% of the work done or at least have 75% attendance.

You can choose to write the tests when you feel you are ready. It is strongly recommended that you complete the suggested homework and do the Summary & Review and the Chapter Test which accompanies each unit. You must get permission of your instructor to write the test and final exam.

All tests and the final exam is written in the math lab in E342 during math lab hours which are posted on the math lab door and on my website. Please be aware that lab hours may change during the term due to staff availability. Please allow one and a half hours to write the tests and 3 hours to write the final exam. If you want to complete the course in one term, you should plan to write a test every 2-3 weeks.

Grade Calculation:

5 Tests		50%
Final Exam		50%

- There is **no rewrite for the final exam**. If the average of your term mark and your exam mark is not high enough to proceed into the next level of Math or your chosen program, then you need to repeat Math 073. But, don't be discouraged. It will likely go much quicker the second time through.

Grade Scale:

0-49	50-59	60-64	65-69	70-72	73-76	77-79	80-84	85-89	90-100
F	D	C	C+	B−	B	B+	A−	A	A+

NS   You will be assigned a "no show" grade if you do not attend the first class and you do not contact your instructor within two days of the first class. Your seat may have been given away to a waitlisted student. If room is available, you may re-register for the course with permission of the instructor.

W   If you find that you are too busy to work on the course, then you need to officially withdraw before **July 6** to avoid getting an F for the course.

IP   An "in-progress" grade is only given in self-paced courses. If you have not finished the course at the end of the term but have attended at least 75% of the classes or have successfully completed at least 3 unit tests that term, then you may be awarded an IP grade. You may only receive two IP grades for a course; the third time you register for the course, you will be assigned an F if you do not complete the course.

Good Luck

The School of Access asks that we provide you with the following addition information.

Academic Progress: The College has an academic progress policy to improve your likelihood of success. To view the policy, see Sec E-1.1 on the policy webpage www.camosun.bc.ca/policies.html.

Learning Support   There are a variety of services available for to assist you throughout your learning. This information is available in the College calendar, at Student Services or the college web site at camosun.ca.

Student Conduct   There is a Student Conduct Policy which includes plagiarism. It is your responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section www.camosun.bc.ca/policies/policies.html.

"Never mistake knowledge for wisdom. One helps you make a living, the other helps you make a life." Good luck this term!!!

Suggested Pacing Schedules
- **Please note that you can take up to 2 terms to complete a course if you need it.**
- **Some chapters may require more time, others less. You can write tests anytime the math lab is open, not just on class days.**

SUGGESTED SCHEDULE TO COMPLETE IN ONE TERM

Wk		Monday	Tuesday	Wednesday	Thursday	Friday
1	Sept	7	8	9 Classes Start 4.1, 4.2	10 4.2, 4.3	11 4.3, 4.4
2		14 4.5	15 4.6	16 4.6	17 4.7	18 4.7
3		21 4.8	22 4.8	23 Review Ch 4	24 **Unit 1 Test**	25 5.1
4		28 5.1, 5.2	29 5.2	30 5.3	1 5.4	2 5.4
5	Oct	5 5.5	6 5.6	7 5.6	8 5.7	9 5.8
6		12 *Thanksgiving Day* Review Ch 5	13 Review Ch 5	14 **Unit 2 Test**	15 6.1	16 6.2
7		19 6.3	20 6.4	21 6.4	22 6.5	23 6.5
8		26 6.6	27 6.6	28 6.7	29 6.8	30 Review Ch. 6
9	Nov	2 Review Ch. 6	3 **Unit 3 Test**	4 7.1	5 7.1	6 7.2
10		9 7.3	10 7.3	11 *Remembrance Day* 7.4	12 7.4	13 7.5
11		16 7.5	17 7.6	18 7.6	19 7.7	20 7.7
12		23 Review Ch 7	24 Review Ch 7	25 **Unit 4 Test**	26 Trig. 5.1	27 Trig. 5.2
13	Dec	30 Trig. 5.2	1 Trig. 5.3	2 Trig. 5.3	3 Trig. 7.1	4 Trig. 7.1
14		7 Trig. 7.2	8 Trig. 7.2	9 Trig. Review	10 **Unit 5 Test**	11 Review for Final Exam
15		Dec 14 – 17 Catch-up week; **last** chance to write a test or final exam is **Thursday, Dec. 17**.				

My Math 073 Pacing Schedule Fall 2015

Wk		Monday	Tuesday	Wednesday	Thursday	Friday
1	Sept	7	8	9	10	11
2		14	15	16	17	18
3		21	22	23	24	25
4		28	29	30	1	2
5	Oct	5	6	7	8	9
6		12 *Thanksgiving Day*	13	14	15	16
7		19	20	21	22	23
8		26	27	28	29	30
9	Nov	2	3	4	5	6
10		9	10	11 *Remembrance Day*	12	13
11		16	17	18	19	20
12		23	24	25	26	27
13	Dec	30	1	2	3	4
14		7	8	9	10	11
15		Dec 14 – 17 Catch-up week; **last** chance to write a test or final exam is **Thursday, Dec. 17**.				

Instructor Information

Instructor: Gemma Cuizon   Lansdowne Office: E342B

Phone: 370-3303

Office Hours: 5:00pm-5:30pm Monday to Thursday

E-mail: cuizon@camosun.bc.ca

Tips for Success
1. Come to class every day. If you don't attend class, it's easy to fall behind and much tougher to catch up as you have to relearn the material.
2. Do the suggested exercises from your course outline. Work through the problems thoughtfully, not just to get them done. Think about what the instruction means, what a similar question might look like on the test and what are some of the pitfalls that you need to avoid.
3. Try to find time to do at least a bit of math at least 5 days a week. On your timetable, schedule time each day for your math homework; it is really important to establish a routine. You can't put your math course on the back burner and hope to cram it in at the end.
4. Do the questions thoughtfully rather than just trying to get them over with! Think about the principles and strategies involved.
5. If you don't understand something seek help right away from your instructor or from the tutors in the <u>Math lab in E224 and E342.</u>
   Math lab hours: Mon – Friday   9:00am – 4:30pm (E224)
                                Mon – Thursday   4:00pm – 8:00pm (E342)
6. Keep working, stay positive and do the best you can given all the other demands in your life.

Class Protocol
1. Sign in so your instructor knows that you're attending.
2. Bring your textbook, calculator and work materials to every class.
3. Work quietly. I encourage you to help each other but please keep the noise level down and keep cell phones on vibrate mode.   If you would like to work with a partner or in a group, please feel free to use the math lab. If you would like to take a break from math (and this is totally understandable) please chat outside the classroom.
4. If you bring snacks to class please tidy up afterwards. Let me know if you have any relevant allergies. Thanks.
5. If you need help and I'm with another student, please put your name on the board so I know you're waiting. If others are waiting, I may have to limit the time I spend with you e.g. 2 questions at a time.
6. When doing the exercises, label each question clearly, write out the question and show your work. This makes it easy to review for the test and to get help if you don't understand.
7. If you have trouble with an exercise, highlight the question and make a note in your margin about what you don't understand. When you ask for help in class, bring the question and your work for the instructor to see.   Be organized!